



Superfund: Past and Future

Briefing for NACEPT Superfund
Subcommittee

September 2002

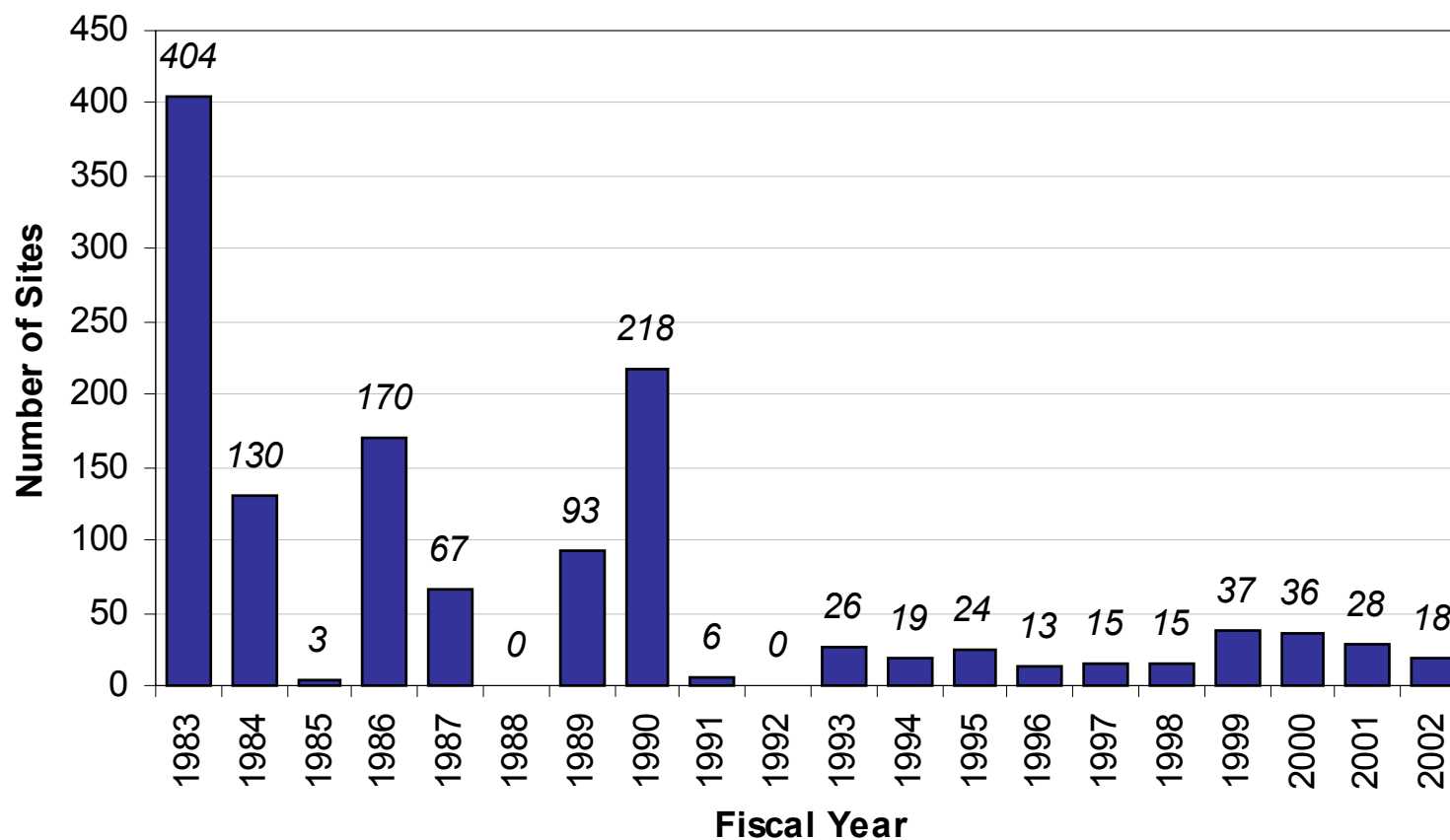
Agenda

- ◆ Superfund's Past
- ◆ Report to Congress
- ◆ Findings
- ◆ Conclusions
- ◆ Thinking About the Future

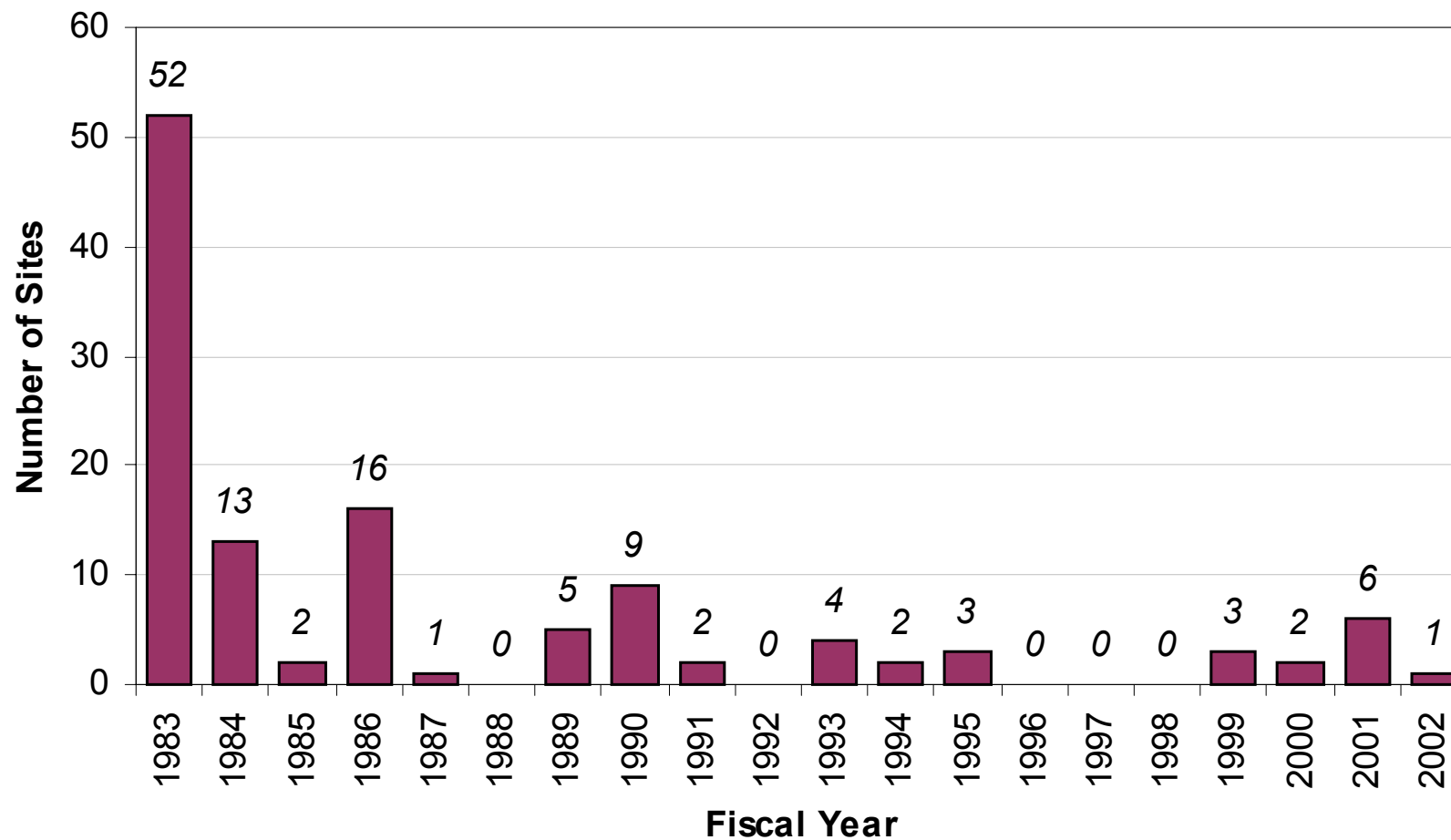
Superfund's Past

NPL Final Listings

FY 1983 - 2002

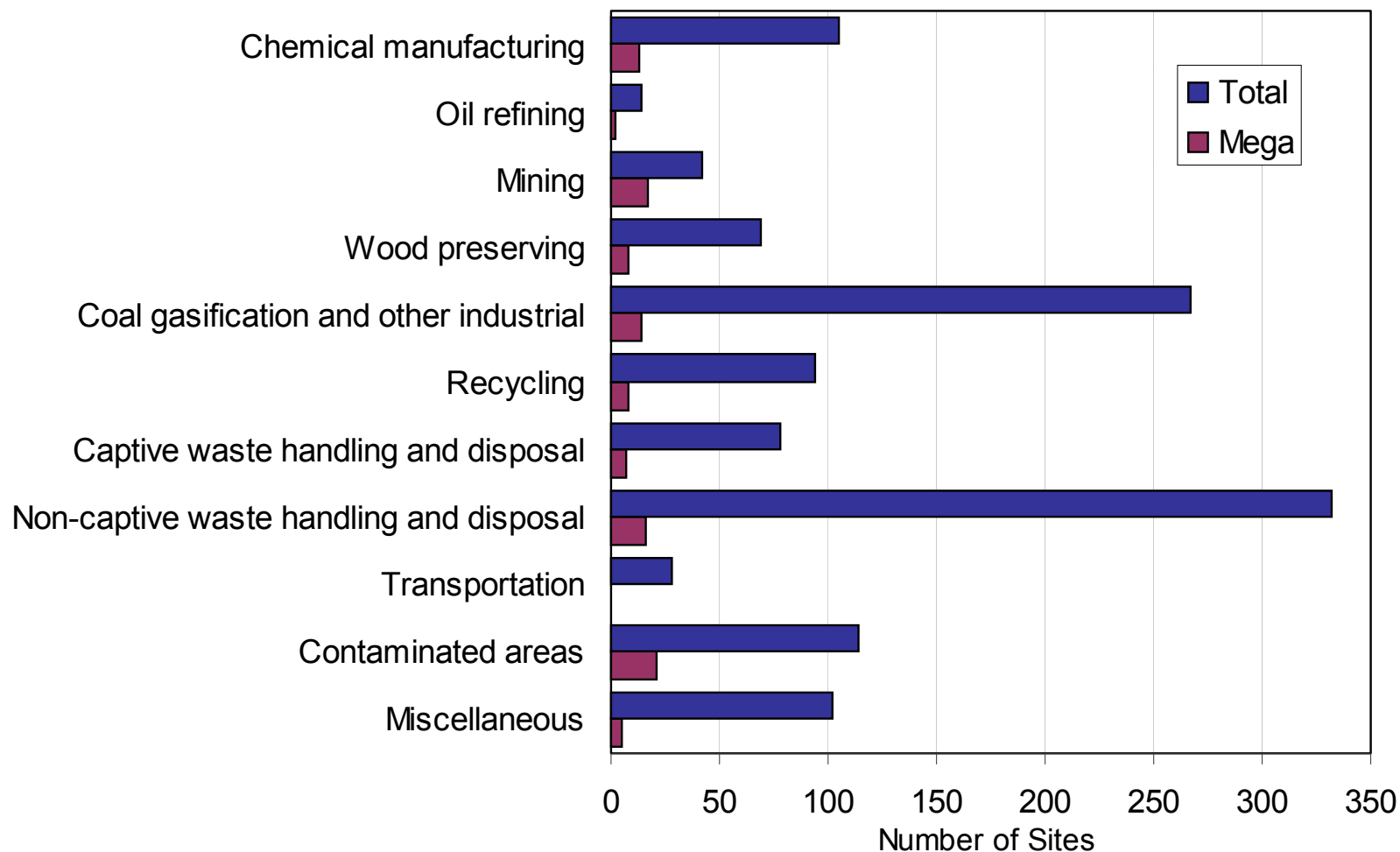


NPL Mega Listings



NPL Sites by Site Type

(as of the end of FY 1999)



NPL Sites by Site Type

(as of the end of FY 1999)

| Type of Site | Number of Sites | Number of Mega Sites | Percent of All Megs | Percent of Site Type |
|---|-----------------|----------------------|---------------------|----------------------|
| Chemical manufacturing | 105 | 13 | 11.6% | 12.4% |
| Oil refining | 14 | 2 | 1.8% | 14.3% |
| Mining | 42 | 17 | 15.2% | 40.5% |
| Wood preserving | 69 | 8 | 7.1% | 11.6% |
| Coal gasification and other industrial | 267 | 14 | 12.5% | 5.2% |
| Recycling | 94 | 8 | 7.1% | 8.5% |
| Captive waste handling and disposal | 78 | 7 | 6.3% | 9.0% |
| Non-captive waste handling and disposal | 332 | 16 | 14.3% | 4.8% |
| Transportation | 28 | 1 | 0.9% | 3.6% |
| Contaminated areas | 114 | 21 | 18.8% | 18.4% |
| Miscellaneous | 102 | 5 | 4.5% | 4.9% |
| Total | 1245 | 112 | 100.0% | 9.0% |

Superfund Appropriations

| Fiscal Year | Total Appropriation | General Revenues | Trust Fund | Percent Trust Fund |
|--------------------|--------------------------------|-----------------------------|-------------------|-------------------------------|
| 1990 | \$1,551 | \$0 | \$1,551 | 100% |
| 1991 | \$1,616 | \$861 | \$755 | 47% |
| 1992 | \$1,616 | \$234 | \$1,382 | 86% |
| 1993 | \$1,574 | \$250 | \$1,324 | 84% |
| 1994 | \$1,481 | \$250 | \$1,231 | 83% |
| 1995 | \$1,431 | \$250 | \$1,181 | 83% |
| 1996 | \$1,311 | \$250 | \$1,061 | 81% |
| 1997 | \$1,394 | \$250 | \$1,144 | 82% |
| 1998 | \$1,500 | \$250 | \$1,250 | 83% |
| 1999 | \$1,500 | \$325 | \$1,175 | 78% |
| 2000 | \$1,400 | \$700 | \$700 | 50% |
| 2001 | \$1,267 | \$635 | \$632 | 50% |
| 2002 | \$1,292 | \$635 | \$657 | 51% |
| 2003 | \$1,239 | \$700 | \$539 | 44% |

Report to Congress

Report to Congress

- ◆ Requested in conference report to FY 2000 VA-HUD appropriations bill
- ◆ Estimate the costs of Superfund from FY 2000 through FY 2009
 - Costs to EPA only
 - Federal facilities, brownfields excluded
 - Under current law and policies
- ◆ Final report requested by December 2000
- ◆ Study released July, 2001

Six Elements

- ◆ Remaining cost of cleaning up current NPL
- ◆ Cost of sites added to the NPL FY 2000 – FY 2009
- ◆ Removal program
- ◆ Operation and maintenance (“LTRA”)
- ◆ Five-year reviews
- ◆ “Nonsite” costs (the rest of the Superfund dollars)

RFF Baseline: Status and Type of NPL Sites, End of FY 1999

1,245 Final and Deleted NPL Sites

112 Mega Sites

25 Construction Complete

87 Not Construction Complete

68 Teenager

19 Not Teenager

1,133 Nonmega Sites

623 Construction Complete

510 Not Construction Complete

250 Teenager

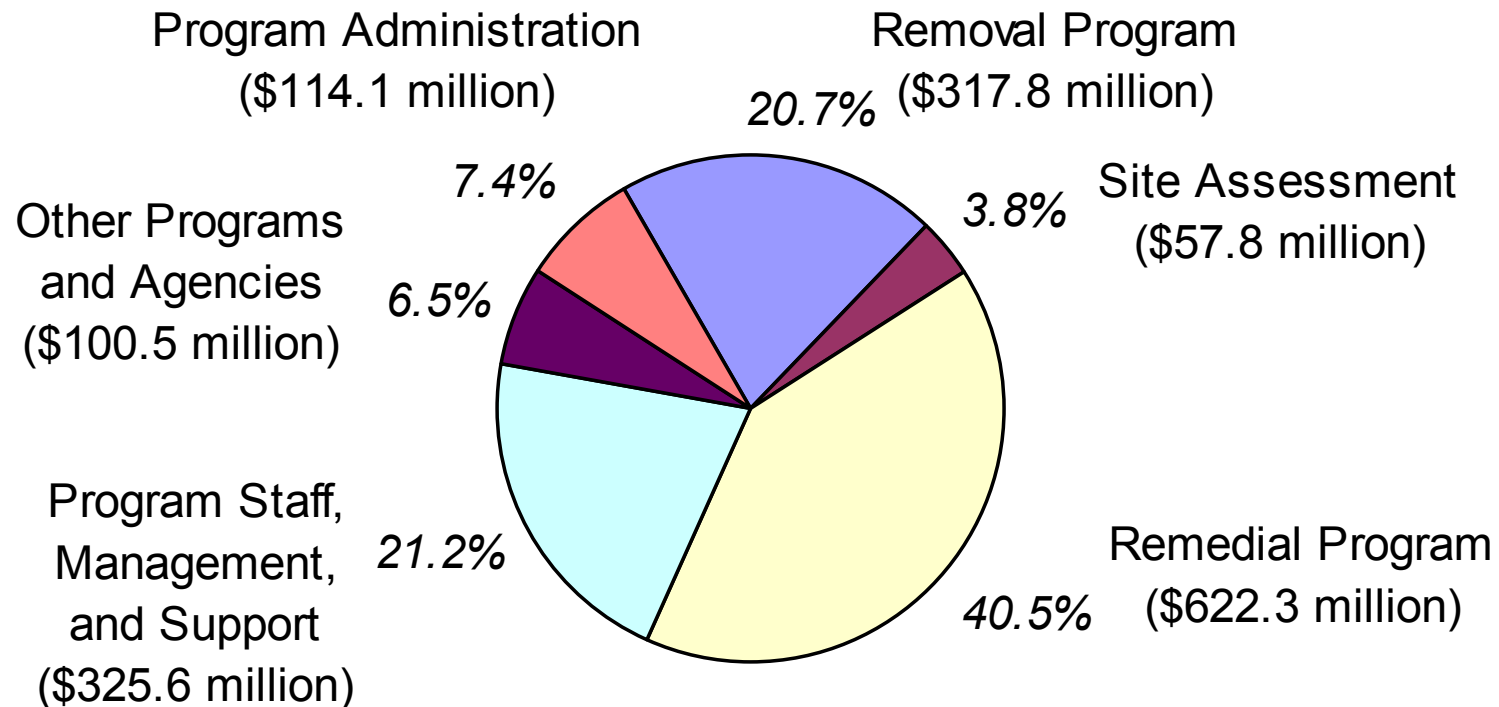
260 Not Teenager

Note: Does not include federal facilities. *Source:* RFF site-level dataset.

Findings

Where Does The Money Go?

(FY 1999 Expenditures)

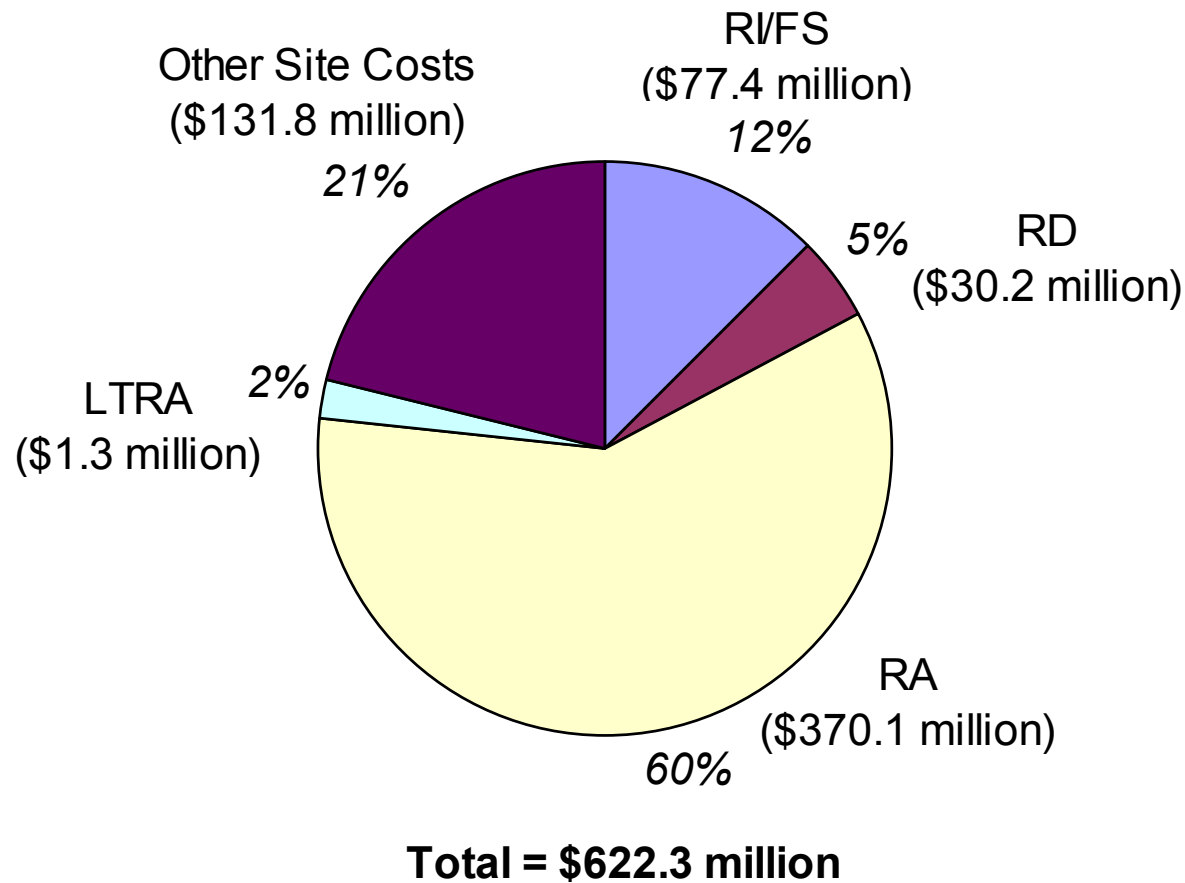


Total = \$1.54 billion

Note: Does not include expenditures for federal facilities or brownfields.

Remedial Program Breakdown

(FY 1999 Expenditures)



Extramural Costs of Remedial Pipeline Actions

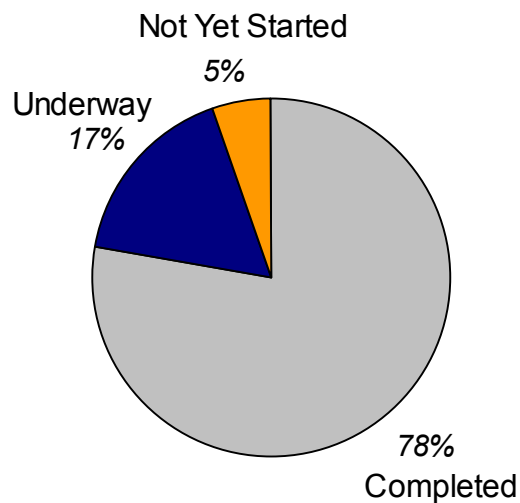
(1999\$)

| | Extramural Unit Costs at Operable Unit Level | | |
|---------------|--|-----------------------------|--------------|
| | RI/FS | RD | RA |
| All sites | \$1,300,000 | \$1,300,000 | \$11,000,000 |
| Mega sites | 2,500,000 | 3,900,000 | 30,000,000 |
| Nonmega sites | 990,000 | 880,000 | 5,800,000 |
| | Number of Operable Units | Total Extramural Site Costs | |
| Mega sites | 3.8 | \$139.6 million | |
| Nonmega sites | 1.6 | \$12.2 million | |

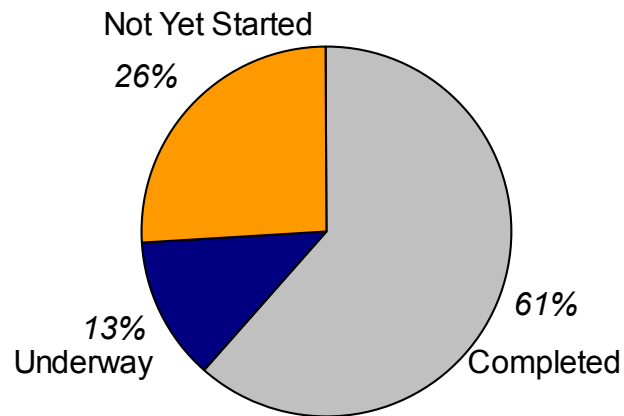
What Work Remains?

(Final NPL Sites as of the end of FY 1999)

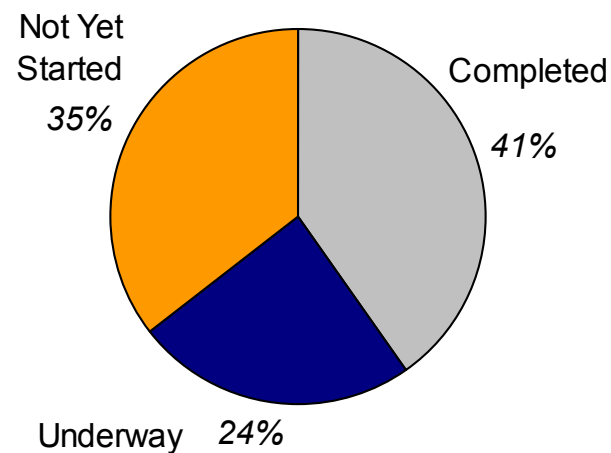
RI/FS



RD



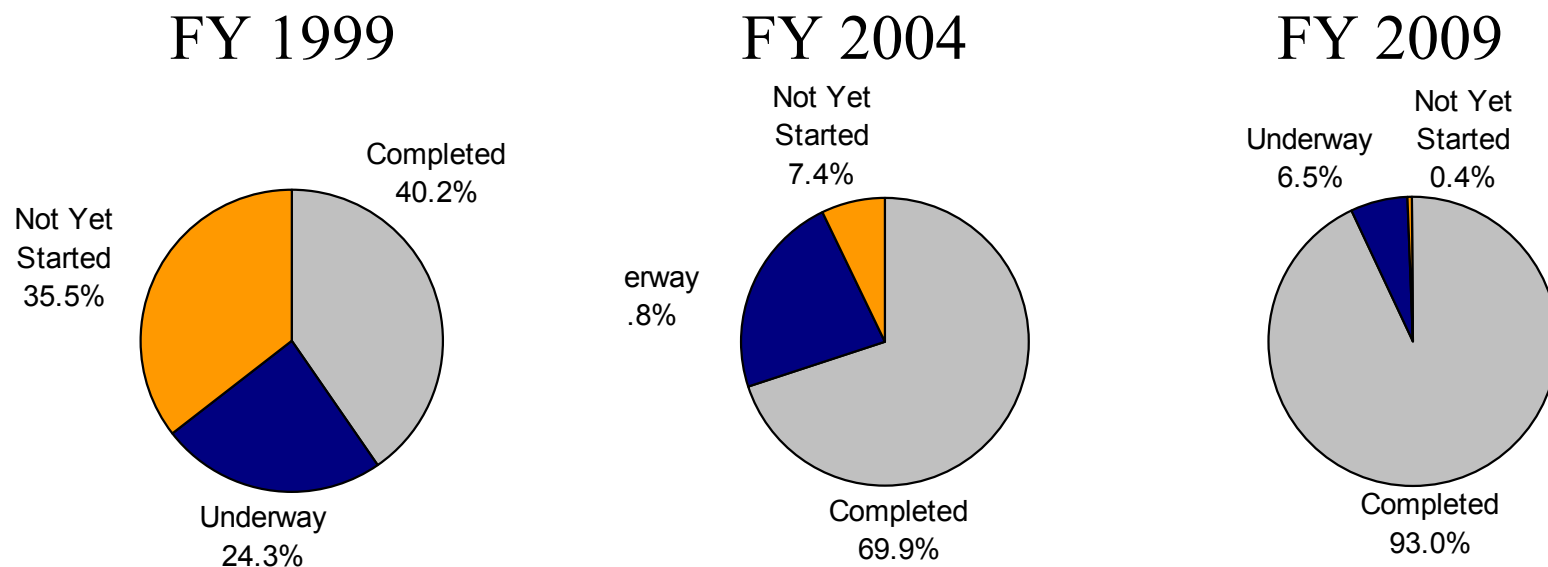
RA



Note: Underway includes actions at mega sites with starts in FY 2000.

RAs Through 2009

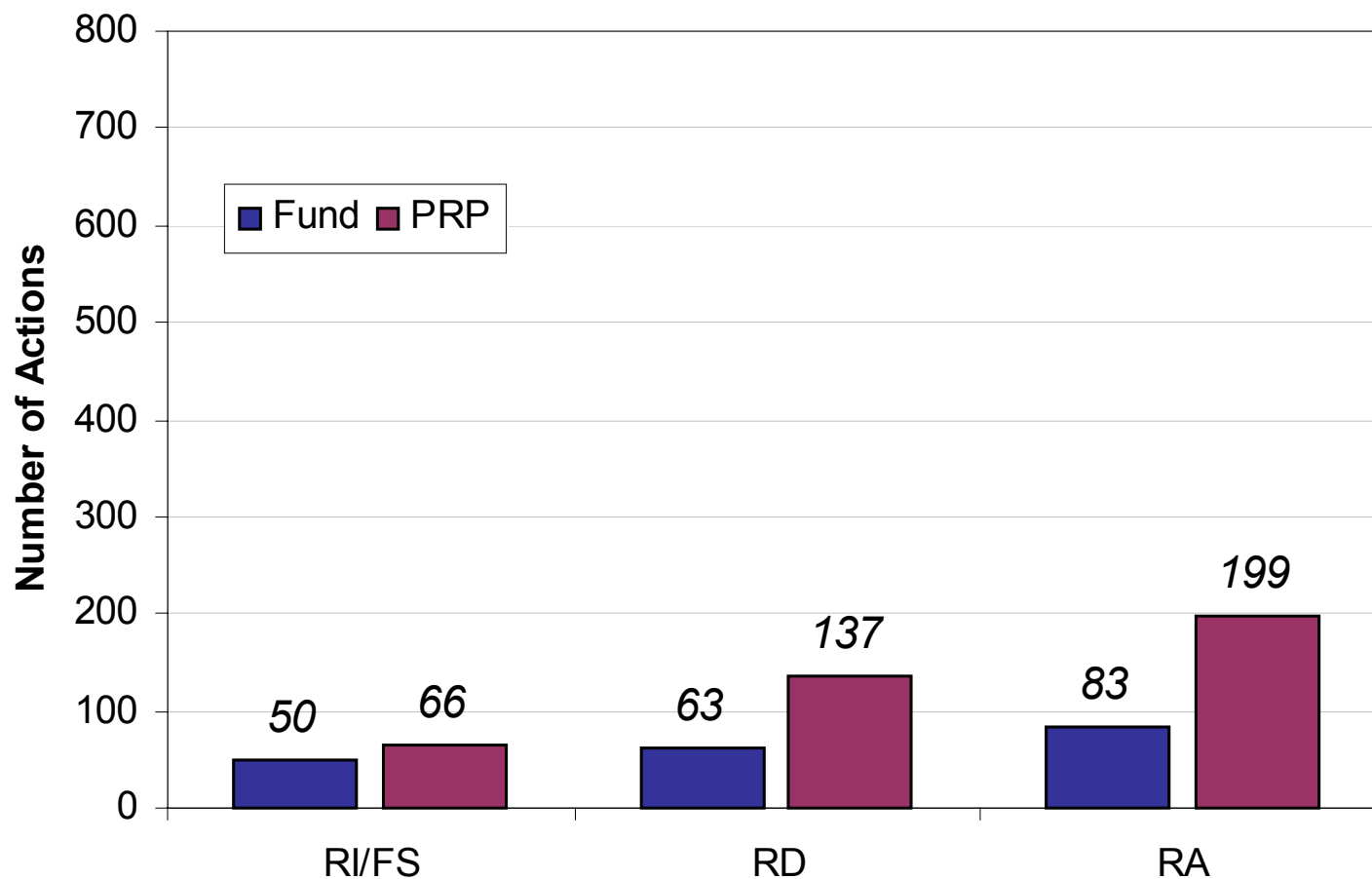
(Final NPL Sites as of the end of FY 1999)



Source: RFF Model

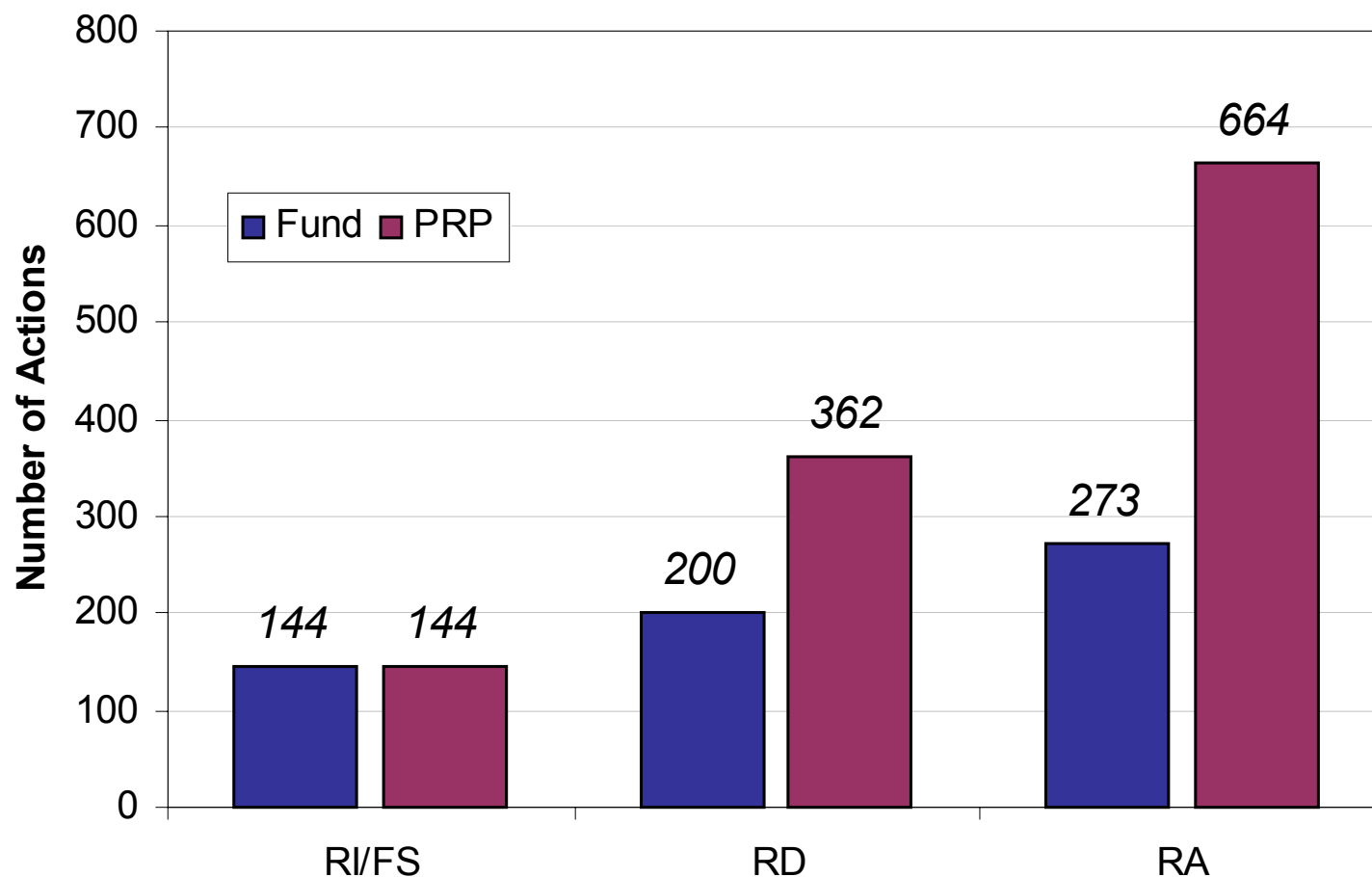
Action Leads at Mega Sites

(Underway and Future Actions at Final NPL Sites, as of end of FY 1999)



Action Leads at Nonmega Sites

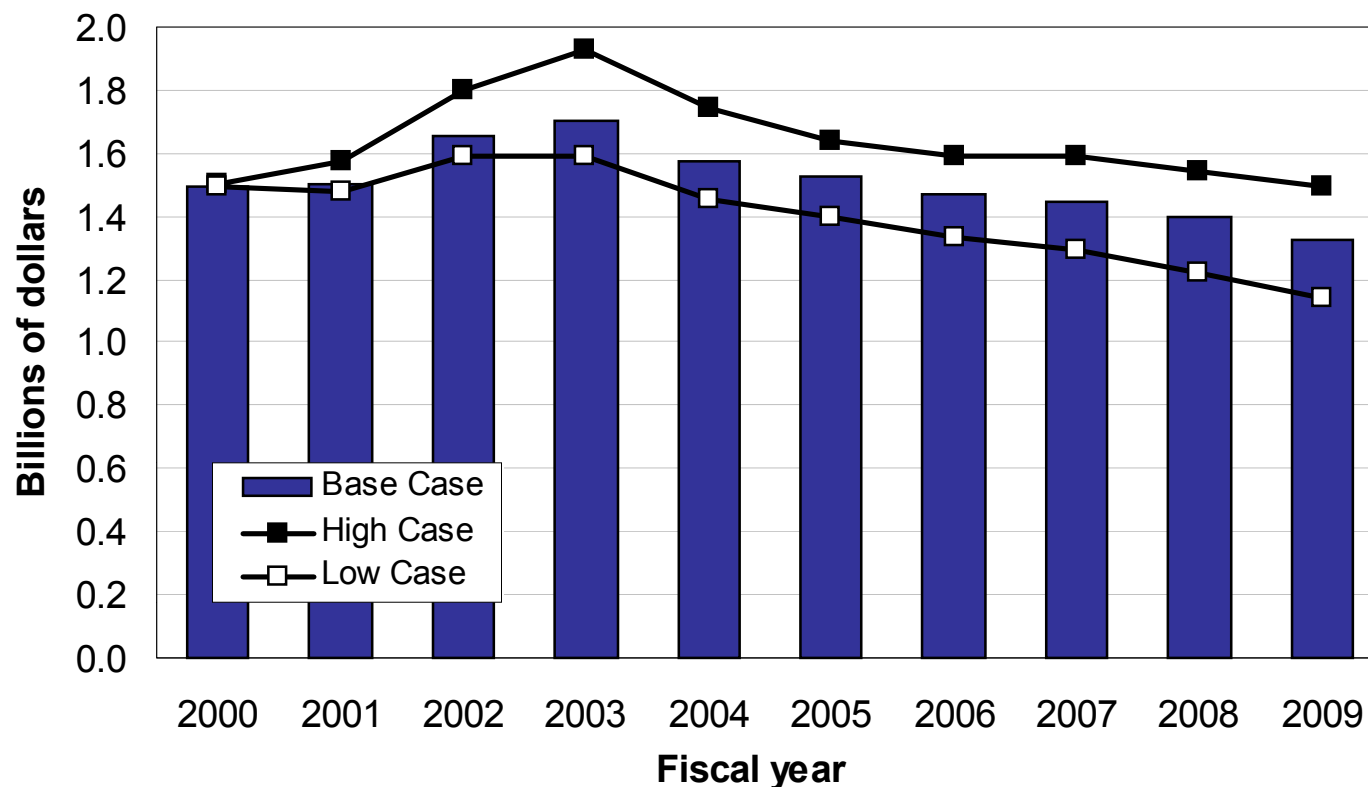
(Underway and Future Actions at Final NPL Sites, as of end of FY 1999)



Conclusions

Ramp down not imminent

**Estimated Total Annual Cost to EPA of Superfund Program:
Three Scenarios, FY 2000-FY 2009 (billions of 1999\$)**



Total 10-year cost: \$14 B - \$16.4 B

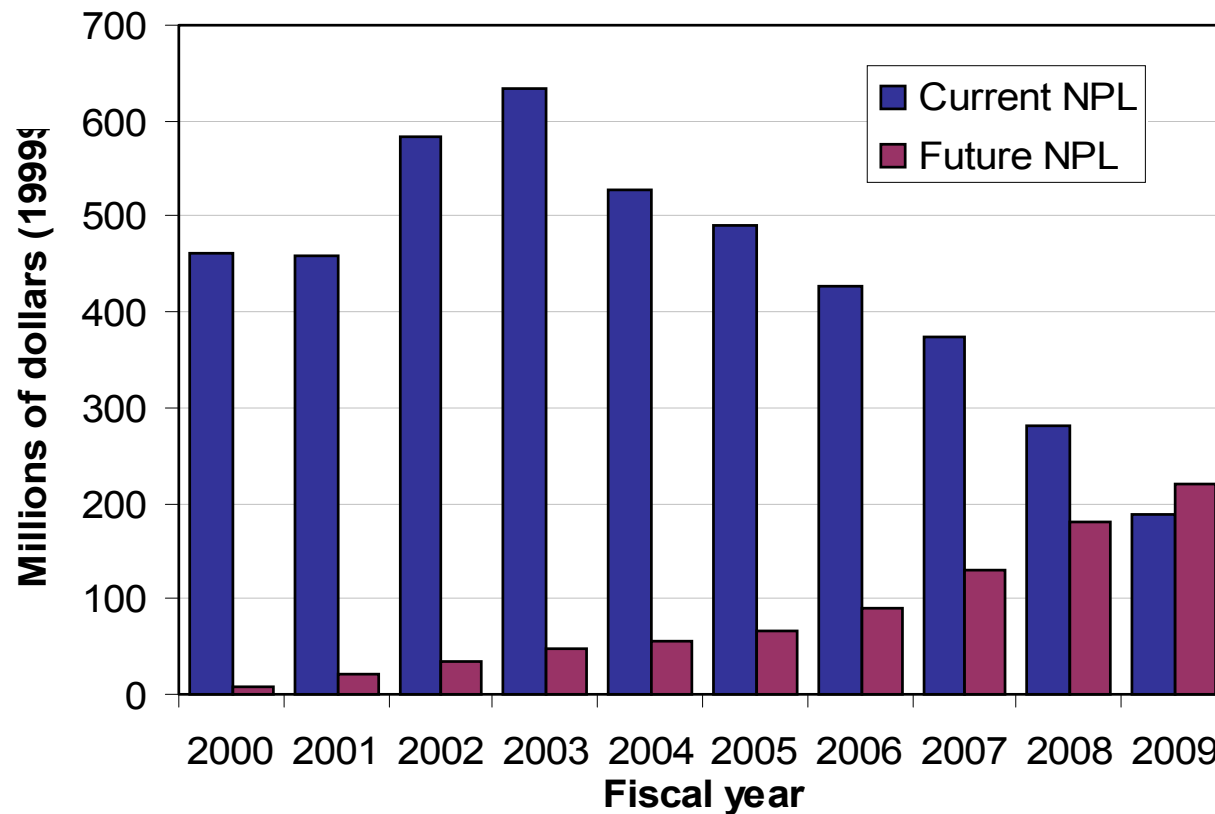
Estimated Total Cost to EPA of Superfund Program: Three Scenarios, FY 2000-FY 2009 (billions of 1999\$)

| | Base case | Low case | High case |
|---|----------------|----------------|----------------|
| Removal program | \$3.18 | \$3.18 | \$3.18 |
| Remedial program | \$6.55 | \$5.71 | \$7.55 |
| Site assessment | \$0.58 | \$0.58 | \$0.58 |
| Program staff, management, and support | \$2.69 | \$2.51 | \$2.89 |
| Program administration | \$1.10 | \$1.02 | \$1.20 |
| Other programs and agencies | \$1.01 | \$1.01 | \$1.01 |
| Total (1999\$)* | \$15.10 | \$13.99 | \$16.40 |
| Total (Inflation-Adjusted Dollars) | \$16.85 | \$15.58 | \$18.33 |

**Note: Totals may not add due to rounding*

Current NPL major driver of costs

**Estimated Total Cost of Fund-Lead Actions at Current and Future NPL Sites:
Base Case, FY 2000-FY 2009**



Predicting future NPL sites is difficult

- ◆ Little information about sites “coming down the pike”—and what information there is, closely held.
- ◆ Sites generally listed on the NPL when:
 - States want Trust Fund money
 - PRPs are recalcitrant or not financially viable
 - Relocation is involved.
- ◆ Governor’s concurrence complicates listing.

Predicting future NPL sites is difficult

- ◆ States with strong programs (N.J, NY, CA, PA) are big listers.
- ◆ Weak states list few if any NPL sites.
- ◆ State cost share of Fund-lead remedial actions (10% of cleanup and 100% of operation and maintenance) a big issue.

Other Conclusions

- ◆ More work is needed to assess staff and program management needs.
- ◆ Post-construction activities are crucial.

Thinking About the Future

Recent NPL listings

◆ FY 2000 –

- 36 final nonfederal NPL sites, 2 mega sites:
 - Leviathan Mine, California, Region 9
 - Midnite Mine, Washington, Region 10

◆ FY 2001

- 28 final nonfederal NPL sites, including 6 mega sites:
 - Indian Refinery-Texaco Lawrenceville, Illinois, Region 5
 - Malone Service Company, Inc., Texas, Region 6
 - Gilt Edge Mine, South Dakota, Region 8
 - Casmalia Resources, California, Region 9
 - Portland Harbor, Oregon, Region 10
 - Lower Duwamish Waterway, Washington, Region 10

Recent NPL Listings (cont'd)

◆ FY 2002

- 18 final nonfederal NPL sites, including 1 mega site:
 - Del Amo. California, Region 9

Lead by Site Type

| Type of Site | RI/FS | | RD | | RA | |
|---|------------|------------|------------|------------|------------|------------|
| | Fund-lead | PRP-lead | Fund-lead | PRP-lead | Fund-lead | PRP-lead |
| Chemical manufacturing | 45% | 55% | 32% | 68% | 35% | 65% |
| Oil refining | 67% | 33% | 25% | 75% | 21% | 79% |
| Mining | 40% | 60% | 83% | 17% | 67% | 33% |
| Wood preserving | 78% | 22% | 57% | 43% | 44% | 56% |
| Coal gasification and other industrial | 55% | 45% | 31% | 69% | 29% | 71% |
| Recycling | 58% | 42% | 18% | 82% | 19% | 81% |
| Captive waste handling and disposal | 38% | 62% | 14% | 86% | 11% | 89% |
| Non-captive waste handling and disposal | 25% | 75% | 12% | 88% | 11% | 89% |
| Transportation | 88% | 13% | 11% | 89% | 29% | 71% |
| Contaminated areas | 73% | 27% | 36% | 64% | 37% | 63% |
| Miscellaneous | 86% | 14% | 49% | 51% | 41% | 59% |

Note: Percentages may not add to 100% because of rounding.

Source: Data provided to RFF by EPA in October 2000.

Extramural Unit Costs of Remedial Pipeline Actions by Site Type

(Nonmega sites only; at operable unit level; 1999\$)

| Type of Site | RI/FS | RD | RA |
|--|-----------|-----------|--------------------|
| Chemical manufacturing | \$710,000 | \$830,000 | \$5,200,000 |
| Oil refining | 550,000 | 910,000 | 4,500,000 |
| Mining | 2,200,000 | 1,200,000 | 10,000,000 |
| Wood preserving | 750,000 | 1,000,000 | 11,000,000 |
| Coal gasification and other industrial | 1,100,000 | 810,000 | 5,700,000 |
| Recycling | 1,200,000 | 1,100,000 | 4,400,000 |
| Captive waste handling and disposal | 440,000 | 780,000 | 3,700,000 |
| Noncaptive waste handling and disposal | 1,000,000 | 1,200,000 | 5,900,000 |
| Transportation | 560,000 | 450,000 | 10,000,000 |
| Contaminated areas | 970,000 | 650,000 | 4,100,000 |
| Miscellaneous | 1,200,000 | 610,000 | 3,200,000 |

Available Funding for State-Lead Cleanup

| State | FY 2000 resources |
|---------------|--|
| California | \$8 million |
| Florida | Subject to annual appropriations |
| Massachusetts | \$3 million - 5 million |
| Missouri | Capable of funding only small emergency response cleanups |
| New Jersey | \$20 million - 30 million (should stay in this range for next six years) |
| New York | \$193 million |
| Pennsylvania | \$45 million |
| Ohio | Capable of funding only small emergency response cleanups |
| Texas | \$24 million |

Source: RFF State Interviews, July 2000.

Background Slides

Future NPL Scenarios

| | Base case | Low case | High case |
|--|-----------|----------|-----------|
| Number of sites listed each year | | | |
| Total | 35 | 23 | 49 |
| Mega | 2 | 1 | 3 |
| Nonmega | 33 | 22 | 46 |
| Percent of Fund-lead actions at mega sites | | | |
| RI/FS | 80% | 80% | 80% |
| Remedial Design | 35% | 35% | 35% |
| Remedial Action | 25% | 25% | 35% |
| Percent of Fund-lead actions at non-mega sites | | | |
| RI/FS | 75% | 75% | 75% |
| Remedial Design | 40% | 30% | 40% |
| Remedial Action | 40% | 30% | 40% |

General Approach

- ◆ Worked closely with EPA and large group of external experts—Hill, states, industry, enviros
- ◆ Relied mostly on CERCLIS and IFMS data
- ◆ Modeled workload of Fund and PRP-lead actions at NPL sites
- ◆ Baseline is end of FY 1999
- ◆ Developed three future scenarios
- ◆ Estimates are projected annual expenditures in constant 1999 dollars

Estimating Cost of Fund-Lead Actions

- ◆ Separated out “mega” sites
- ◆ Used historical data of actual EPA expenditures to develop average costs
- ◆ Addressed differences in site types
- ◆ Calculated average durations for categories of sites (mega and nonmega, teenager and nonteenager)

Durations

